attention to several definite reversals of response in laboratory conditions as compared with what is shown immediately after being taken from the sea. This greatly complicates the practical problems.

In general the plankton animals of a given species are more numerous at higher levels and less abundant at lower. One form may range from the surface to 100 fathoms, and another from 100 to 200 fathoms. What are the factors which operate to produce this result? The rhythmic quality suggests that the action of light in day and night is responsible. Clearly, also gravity, increase of pressure, salinity, temperature, and the like enter along with light into the problem. Equally also there may be internal or physiological rhythm apart from anything external.

The following general conclusions are suggested:

(1) That no general explanation will hold for all the forms, in as much as there are quick specific reversals in behavior under stimulus.

(2) While there are some experimental reversals of geotropism, change in geotropism because of change in light intensity cannot account wholly for vertical migration as a general phenomenon. Geotropism is, however, usually positive when the light is vertically above the water.

(3) The same limitations must be made with respect to changes in temperature as explanatory of general migrations.

(4) Physiological rhythm is shown in some species, under certain conditions, and may enter into the explanation of diurnal migrations.

ARCELLA EXCAVATA NOV. SP.

Habitat: Found in small swamp along with other varieties near Durham, N. C. First noted occurrence Dec. 9, 1918.

Shape: Somewhat like a quarter-section of cantaloup, the mouth being situated in the cup.

Size: Length 55μ, width 50μ, total depth 45μ, depth of depression 25μ, mouth $15x20\mu$.

Color: Brown to almost black.

Differs from *A. discoides* Leidy[1] in contour. Other difference can not be determined since Leidy does not describe the indidivuals. It differs from *A. curvata* of Wailes[2] in size and contour. *A. curvata* is about three times as large, and has a thickness about ⅓ its diameter while *A. excavata* has a thickness nearly equal to its diameter. *A. curvata* is rather saucer shaped while *A. excavata* is U-shaped.

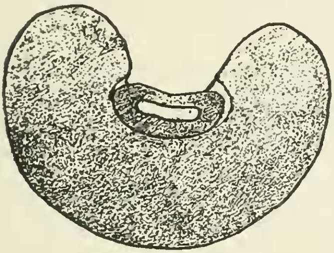

Fig. 1. Side View.

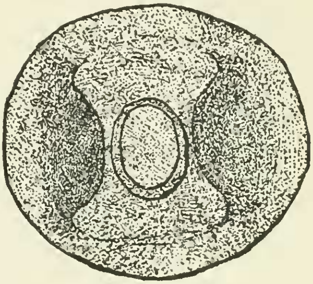

Fig. 2. Oral View.

The author wishes to acknowledge the assistance rendered by Dr. C. H. Edmondson, who agrees with the author that this is a probable new species and has suggested the name given.

[1] Fresh Water Rhizopods of North America. Joseph Leidy. U. S. Geological Survey of the Terr. 1879.

[2] Fresh Water Rhizopods from N. and S. America. Wailes. Journal. Linn. Soc. Zoology 32:203.

BERT CUNNINGHAM.

Trinity College,
Durham, N. C.

CARPENTER ANT DESTROYING SOUND WOOD

Graham (Report State Ent. Minn., 17, 1918) refutes the standard statement that the carpenter ant, *Camponotus pennsylvanicus* Degeer works merely in decaying wood, but does not attack sound material. The author finds the ants attacking the solid heart wood of living cedar trees in Minnesota.

It seems true that they always attack a tree by way of some wound or decayed spot. In as much as few trees of pole size are without some such diseased areas, much of the cedar harbors colonies. After a colony is established in a tree the ants work upward from the rotten